
To Conduct organoleptic evaluation of food served in Mid Day Meal (MDM) Scheme and find out hygienic and sanitation condition of kitchen preparing MDM in District Deoria

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ABSTRACT

The organoleptic evaluation of the menu of five blocks primary schools in district Deoria by children and trained panelist in 2014 and 2015. According to children the overall acceptability scores were maximum for chapatti and mix vegetables in 2014 and 2015. Similarly, children and trained panelist had given minimum score for overall acceptability of tahari in 2014 and rice and mix vegetables in 2015. Helpers and cook clean the cooking area and clear hands before cutting the vegetables that hygienic practices of the personnel were also observed using an observation schedule. Ladles for portioning/serving were not very clean, food container were kept on the ground/floor and since no plates and spoons were provided by the schools children often brought unwashed or dirty plates to eat these meals, neither the cooks nor the children washed their hands before and after cooking, distribution and eating the MDM. The staff engaged in cooking and distributing the MDM did not wear any apron, head gear or gloves while cooking and distributing MDM with uncovered hair.

KEYWORDS : MDM, NMDM , Organoleptic evaluation, nutrient intake and Deoria.

INTRODUCTION:

On 28 August 1995, the Hon'ble Supreme Court passed the order to the State Government / Union Territories to implement the Mid Day Meal Scheme by providing every child in every government and government aided primary schools with a prepared mid day meal with minimum content of 300 calories of energy and 8-12 gm of protein each day of school for a minimum of 200 days. From 1 September 2004 cooked meal is being served to the beneficiaries. From 2006 the food being served has been enriched by raising the 450 calories and 12 gm of protein in primary schools. In upper primary schools, it is 700 calories and 20 gm of protein (Wizarat, 2009).

The Chief Secretary of U.P. government has formed district and block level taskforce under the leadership of District Magistrate (DM) and Sub-Divisional Magistrate (SDM) for frequent and effective supervision of MDMS. The taskforce comprises officers from education department as well as from other department also. The inspection undertaken by the members of the taskforce are closely monitored. Each member of the taskforce has to randomly visit at least five schools falling in his jurisdiction and monitor implementation of MDMS. If MDM providing agency like Gram Pradhan, NGOs fail to achieve their goals, the District Magistrate is authorized to replace them by local Self-Help Groups (SHGs).

Mid day meal could create employment opportunities for poor women of the village. Mid day meal could serve the important purpose of improving school enrolment and attendance especially enrolment of girls thus contributing gender equality, with mid day meal, it will be easier for parents to persuade their children to go to school and for teachers to retain children in the classrooms. It could foster sound social behaviour among children and dispel feelings of differences between various castes.

OBJECTIVE:

To Conduct organoleptic evaluation of food served in MDM Scheme and find out hygienic and sanitation condition of kitchen preparing MDM in District Deoria

MATERIAL AND METHODS :-

Study population – The study was carried out among 250 school children(125 Mid Day Meal (MDM) school children and 125 Non – Mid Day Meal (NMDM) school children) aged 7 to 11 years .

Study area :- To assess the impact of program a set of five schools with Mid Day Meal scheme and five school without Mid Day Meal scheme with comparable socio-economic background were used in five block of Deoria District.

Study design :- A cross sectional and multistage random sampling technique.

Data collection :- By using predesigned and pretested schedule (Interview technique and observation) .

RESULTS AND DISCUSSION :-

Table 4.3.10 Average distribution of menu - wise organoleptic evaluation for hedonic rating test of primary schools' children and trained panellist among five blocks primary schools in District Deoria (2014)

Menu	N=10	Colour and appearance	Texture	Taste	Flavour	Overall acceptability
Chapatti & mix vegetables	Children	7.1 (78.89)	6.78 (75.33)	7.52 (83.56)	7.26 (80.67)	7.58 (84.22)
	Trained Panel	6.62 (73.56)	6.32 (70.22)	6.96 (77.33)	6.66 (74.00)	6.9 (76.67)
Rice & dal	Children	7.48 (83.11)	6.82 (75.78)	6.92 (76.89)	7.00 (77.78)	6.84 (76.00)
	Trained Panel	7.2 (80.00)	6.44 (71.56)	6.46 (71.78)	6.7 (74.44)	6.36 (70.67)
Rice and curry	Children	7 (77.78)	7.1 (78.89)	6.94 (77.11)	6.94 (77.11)	6.9 (76.67)
	Trained Panel	6.5 (72.22)	6.5 (72.22)	6.36 (70.67)	6.64 (73.78)	6.26 (69.56)
Chapatti & mix vegetables	Children	6.6 (73.33)	6.6 (73.33)	7.12 (79.11)	7.24 (80.44)	7.14 (79.33)
	Trained Panel	6.24 (69.33)	6.02 (66.89)	6.76 (75.11)	6.56 (72.89)	6.60 (73.33)
Tahari	Children	6.70 (74.44)	6.74 (74.89)	6.76 (75.11)	6.40 (71.11)	6.72 (74.67)
	Trained Panel	6.30 (70.00)	6.24 (69.33)	6.18 (68.67)	6.12 (68.00)	6.18 (68.67)
Rice & mix vegetables	Children	6.80 (75.56)	6.80 (75.56)	6.86 (76.22)	7.00 (77.78)	7.28 (80.89)
	Trained Panel	6.26 (69.56)	6.30 (70.00)	6.38 (70.89)	6.38 (70.89)	6.76 (75.11)

Standard hedonic rating Scale

1 : Disliked Extremely, 2: Disliked very much, 3: Disliked Moderately, 4: Disliked slightly

5: Neither liked of disliked, 6: Liked slightly, 7: Liked moderately, 8: Liked very much

9: Liked extremely

Table4.3.11 Average distribution of menu - wise organoleptic evaluation for hedonic rating test of primary schools' children and trained panellist among five blocks primary schools in District Deoria (2015)

Menu	N=10	Colour and appearance	Texture	Taste	Flavour	Overall acceptability
Chapatti & mix vegetables	Children	7.5 (83.11)	6.9 (77.11)	8.1 (89.56)	7.9 (87.78)	7.8 (87.11)
	Trained Panel	6.9 (77.11)	6.4 (71.33)	7.7 (85.11)	7.5 (83.33)	7.4 (82.00)
Rice & dal	Children	7.6 (84.00)	7.3 (80.67)	7.1 (78.67)	7.3 (81.11)	6.9 (76.89)
	Trained Panel	7.1 (79.33)	6.9 (77.11)	6.7 (74.44)	7.0 (77.33)	6.5 (72.44)
Rice and curry	Children	6.9 (77.11)	6.7 (74.89)	6.8 (75.78)	6.8 (75.56)	6.9 (77.11)
	Trained Panel	6.0 (67.11)	6.1 (68.22)	6.1 (68.22)	6.3 (70.22)	6.2 (69.11)
Chapatti & mix vegetables	Children	7.6 (84.00)	7.3 (80.67)	7.8 (87.11)	7.5 (82.89)	7.4 (82.44)
	Trained Panel	7.1 (79.33)	6.9 (77.11)	6.8 (75.78)	6.9 (76.22)	7.0 (77.78)
Tahari	Children	6.5 (72.44)	6.7 (74.67)	6.8 (75.56)	6.9 (76.67)	6.9 (76.67)
	Trained Panel	6.1 (67.33)	6.1 (67.78)	6.3 (70.44)	6.1 (68.00)	6.2 (69.11)
Rice & mix vegetables	Children	6.6 (72.89)	6.8 (75.11)	6.3 (70.00)	6.4 (70.89)	6.7 (74.22)
	Trained Panel	6.1 (68.22)	6.0 (67.11)	5.6 (62.67)	5.6 (62.67)	6.0 (66.67)

Standard hedonic rating Scale

1 : Disliked Extremely, 2: Disliked very much, 3: Disliked Moderately, 4: Disliked slightly

5: Neither liked of disliked, 6: Liked slightly, 7: Liked moderately, 8: Liked very much

9: Liked extremely

Table 4.3.10 to 4.3.11 revealed the organoleptic evaluation of menu by five primary schools by children and trained panellist. Results revealed that trained panellist members had scored lower scores as compared to children for the all menu by five primary schools.

According to children the overall acceptability scores were highest for chapatti and mix vegetables (7.5) indicating liked very much then for followed by rice and mix veg. (7.2) and rice & curry (6.9) whereas according to trained panel the overall acceptability scores were also highest for chapatti and mix vegetables (6.9) as moderately followed by rice & mix vegetables (6.7) and rice and dal (6.3) similarly children and trained panellist had give lower score for overall acceptability of tahari (6.7 and 6.1 respectively) .

With respect to the high score was given for colour and appearance by all these evaluators viz., children (7.0) and trained panel (7.2) rice & dal followed by chapatti & mix veg. (7.1 and 6.6, respectively), rice and curry (7.0 and 6.5 respectively), and rice & mix veg. (6.8 and 6.3 respectively) where as minimum score for colour and appearance of tahari (6.7 and 6.2 respectively) as compared to children and trained panellist.

For rice and curry have given highest score for texture (7.5 and 6.5, respectively) followed by rice & dal (6.8 and 6.4, respectively), chapatti & mix veg. (6.7 and 6.3, respectively) however minimum score for tahari (6.7 and 6.1, respectively).

According to children and trained panel the taste score was highest for chapatti and mix vegetables (7.1 and 7.7, respectively) followed by rice and curry (6.6 and 7.8 respectively) and minimum score for taste of tahari (5.0 and 5.8 respectively).

For chapatti and mix vegetables all evaluators viz. children and trained panellist have given higher score for flavour (7.5 and 7.0, respectively) as compared to other sensory parameters of meal followed by rice and dal (7.0 and 6.7, respectively) and rice and curry (6.9 and 6.4, respectively) where as minimum score for flavour of rice and dal (6.8 and 6.2, respectively) as compared to children and trained panellist.

The data depicted hygienic practices of the personnel were also observed using an observation schedule. Ladles for portioning/serving were not very clean, food container were kept on the ground/floor and since no plates and spoons were provided by the school, children often brought unwashed or dirty plates to eat these meals, neither the cooks nor the children washed their hands before and after cooking, distribution and eating the MDM. The staff engaged in cooking and distributing the MDM did not wear any apron, head gear or gloves while cooking and distributing MDM with uncovered hair. It was observed by the researcher (on all visits) that although the cooks did not follow any kind of personal hygiene practices but whenever they realized that

researcher was around, they become conscious and would immediately wash their hands before cooking and distributing the MDM Nawalpur primary school and Belhi primary school of the cooks interviewed responded that they maintain hygiene and cleanliness during cooking process, the activities done during the cooking process,

- Helpers and cook clean the cooking area and clear hands before cutting the vegetables.
- Clear the area after cooking
- Wash the utensils
- Maintain cleanliness in use of water and detergent

However, in some school (Bhatpar and Bankata) it was observed that there was lack of proper ventilation and light in the kitchen sheds although food was cooked in veranda or open which not safe. Most of the MDM school, students (100%) themselves were washing their own plates whereas majority of schools, cook (100%) has the responsibility to wash utensils and all MDM schools were not any washing area for washing utensils.

CONCLUSION :- The organoleptic evaluation of the menu of five blocks primary schools in district Deoria by children and trained panelist in 2014 and 2015. According to children the overall acceptability scores were maximum for chapatti and mix vegetables in 2014 and 2015. Similarly, children and trained panelist had given minimum score for overall acceptability of tahari in 2014 and rice and mix vegetables in 2015. With respect to the high score was given for colour and appearance by all these evaluators viz, children and trained panelist rice and dal in 2014 and similar chapatti and mix vegetables' and rice and dal, respectively in 2015. However, minimum score for colour and appearance of tahari as compared to children and trained panelist in both previous and preceding years.

For, children and trained panelist chapatti and mix vegetables and rice and dal had given similar highest score for texture in 2015. Whereas, rice and curry had given highest score for texture in 2014. However, minimum and similar score for tahri in year 2014 and 2015. According to children and trained panelist the taste score were similar and highest for chapatti and mix vegetables' in both years. Still minimum score of taste of tahari in year 2014 and rice and mix vegetables in year 2015. Chapatti and mix vegetables all evaluators' viz. children and trained panelist had given higher score for flavor in both years. Though minimum scores for flavor of rice and dal in 2014 and rice and mix vegetables in 2015 among five blocks primary schools in district Deoria.

Helpers and cook clean the cooking area and clear hands before cutting the vegetables that hygienic practices of the personnel were also observed using an observation schedule. Ladles for portioning/serving were

not very clean, food container were kept on the ground/floor and since no plates and spoons were provided by the schools children often brought unwashed or dirty plates to eat these meals, neither the cooks nor the children washed their hands before and after cooking, distribution and eating the MDM. The staff engaged in cooking and distributing the MDM did not wear any apron, head gear or gloves while cooking and distributing MDM with uncovered hair. It was observed by the researcher (on all visits) that although the cooks did not follow any kind of personal hygiene practices but whenever they realized that researcher was around, they become conscious and would immediately wash their hands before cooking and distributing the MDM Nawalpur primary school and Belhi primary school of the cooks interviewed responded that they maintain hygiene and cleanliness during cooking process. However, in some school (Bhatpar and Bankata) it was observed that there was lack of proper ventilation and light in the kitchen sheds although food was cooked in verandah or open which not safe. Most of the MDM school, students (100%) themselves were washing their own plates whereas majority of schools, cook (100%) had the responsibility to wash utensils and all MDM schools were not any washing area for washing utensils.

REFERENCES :-

- Gopalan, C, Sastri, B.V. Rana., Balasubramanian,S.C. (2004), Nutritive Value of Indian Foods, National Institute of Nutrition(NIN), Indian Council of Medical Research (ICMR), Hyderabad, India.p.46-98.
- ICMR (2001),Nutrient requirement and recommended dietary allowances for Indians, NIN, Hyderabad India p.11-64.
- WHO (2007), Malnutrition and Anemia Hand Book of integrated management of childhood illness, p. 47-52
- Wizarat, Kausar.(2009). Study of best practices adopted in mid day meal scheme in Uttar Pradesh. Department of Higher and Professional Education, National University of Educational Planning and Administration, *Indian Journal of Clinical Nutrition*, **16** (3):77-82